Contradiction in Hegel's Logic and Hegel's Semantics of Negation

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Abstract

The aim of this article is to discuss and to precise Hegel's semantics of negation. There is also in the article the explanation of the fact that Hegel's logic is free of the *ex falso quod libet* principle.

Keywords

Hegel, contradiction, negativity, negation, quod libet principle, *ex falso quod libet*, *Aufhebung*, *Hinaushebung*, principle of contradiction, principle of non-contradiction, principle of identity, difference, Aristotle, Vasiliev, Da Costa.

1 Introduction

Contradiction is rediscovered by philosophy as something essential. That is the contribution of Hegel's philosophy of logic. Hegel observes that contradiction, while a positive fact of the world, had been banned from thought and from the things, the being, and the duration. It has been affirmed, Hegel says, that there is not what is in fact contradictory. Contradiction was shifted to subjective reflection. But even there, which is remarkable, contradiction cannot be thought or represented.

It is interesting to notice that, for Hegel, contradiction is the omnipresent fact of reality and of the thinking reflection (*die denkende Reflexion*). He observes that the maximum that has been given to the contradiction in his time, for reality or for reflection, was the status of casuality, abnormality, or a provisional or morbide paroximus *(Kant)*.

In his *Science of Logic*, in The Doctrine of Essence, Hegel is in total opposition to that position. Contradiction for him is not abnormality but negativity in its essential determination, the principle of the self-movement, which would not exist except in its proper representation. The exterior and sensitive movement is its immediate existence (*Dasein*). The movement is essentially contradiction, what is on the move is in the here and now and is in there and now. The movement is the existent (present) contradiction.

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2 The Reach of Negation in Hegel's Semantics

The portrait of movement as contradiction expresses the negativity in all processes. One process has its components. In the case of movement, which founds all processes, the portrait can be expressed by the being here now (position A) and the not being here now (position $\sim$A). This not being is the immediate negativity, the next negativity, even the inner negativity of A with regard to the inner of the considered process. This $\sim$A is a position or (quasi-position, the pure other position), which does not coincide to the position A, but it is somewhat immediate concerning the position A. One can notice that the precise time is an unavoidable element in Hegel's logic.

> "Something, which is on the move, is in one and same now here and there, whereas it is equally here and is not here."[61]
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> "what is on the move is in the now here and [is] in the now there."

For a time t_1, S is P^1 and $\neg P^1$.
These P^1 and $\neg P^1$ (both true) converge.
For a time t_2, $P^1 \wedge \neg P^1$ disappear and we have the zero, in fact a new position P^2, somehow an extension of $\neg P^1$:

$$P^1 \wedge \neg P^1 \Rightarrow [0]P^2,$$

somehow $\neg P^1$, where $\neg P^1$, considering all its positions in the process, is a set: [quasi-$P^1(t_1), P^2(t_2)$[0]].
In t_1, P^2 is just one possibility from a limited set P^n.
We could then write:

$$P^1 \wedge \neg P^1 \Rightarrow \neg P^1.$$

When we speak about negation, for example, when I say: "this is a black ball" and ($\wedge$) "this is not a black ball"[1], "not a black ball" could mean any ball with any color, which is not the black color. It means any ball with anyone of an infinite number of different colors.

And more, "there is not a black ball" can mean a infinite number of things, which are not a black ball, where it is included a infinite number of things, which are not balls, the infinite number of things, which can replace here a ball... and more: we can replace what is not a black ball even with "nothing"... Therefore, we can say this is a black ball and this is a orange ball... and more: this is a black ball and this is a phone, a ship... a horse simultaneously.

Nevertheless, this doesn't happen in Hegel's semantics, where negation is restricted to an immediate negation of one property or of something in one considered process, the pure other of A (*das rein Andere des A*). Only this fact is sufficient to avoid the concrete apparition of the principle of explosion. In fact, from the concrete contradiction can result different things and positions (I am speaking about the movement in itself), but neither anything nor any position, neither infinite things nor infinite positions. We have the next positions (or things) around the contradiction (A$\wedge \sim$A); the next positions around the

[1] To this end, of course, we get different possibilities, if we consider different kinds of proposional contents. For example: 1) Socrates is alive; 2) Socrates is young; 3) the temperature today is 23 degrees in São Paulo or yet "the man is not man"

contradiction are one restriction on an unlimited amount of positions or things. There is a surrounding with limits of possibilities. Concretely, it cannot support the principle "*Ex contradictione sequitur quod libet*."

But what we saw now is not all.

3 Formal Rejection of the *Quod Libet* Principle

There is another reason why Hegel's semantics rejects the principle of explosion. Thinking on Aristotle's $(M_p \wedge \neg p)$[2], we can say that p and $\neg$p cannot be separated from one another, because both p and not-p belong to the same ontological status, as both refer to the future. Or, in Hegel, the positive and the negative express the contradiction, which is not but the opus of their common work. Both moments take one another, they are innerly linked; by consequence, they cannot be separated. Then we have S is P and not P. Formally, we have here a contradiction in the inner of the predicate, as it happens in Vasiliev's logic and, as we know, this position of the contradiction could save the logical coherence of one logical system.

We can say that Hegel pulls Aristotle's contradiction from the future to the present, from the $(M_p \wedge \neg p)$ to the S is P and not P,[3] working seriously with the contradiction, and trying to develop his logic.

That is not all. Hegel highlights his semantics of negation more and more. He gives some structuring elements for its semantic field:

> "(...) overcomes (each one) itself the positive and the negative, each one in its own autonomy; each one is simply to pass or much more to translate in its contrary. This disappearance of the opposites in themselves is the next unity, which by the contradiction is fulfilled, and it is the zero." [52]

This zero is the result of one contradiction concerning the past. This contradiction existed in time t_1 and is solved in subsequent time t_2. The result is not only zero because the positive and the negative express the positioned being of the autonomy of the movement. Their negation overcomes by themselves the positived being of the autonomy. This is what truly in contradiction disappears (*zugrunde geht*).

The result is zero (*null*), if one considers the memory and the movement presupposed in the process, which is solved, but this result of contradiction is not too null because the new state of the things brings in the new situation the negative and the positive, which are the positived being of the autonomy.

In the absolute overcoming (*hinaushebung*), concerning always one concrete process, as in the case of the essence, the finite properties of the concrete beings are expelled. By this way, banning the finite elements from the concrete man, individual, we can get the human essence. This fact shows us that the contradiction is in every place. It is even in the proposition *Socrates is a man*. The contradiction is here because what has finite properties is equal to what does not have them.

[2] To think on Aristotle here is to think on the possibiliy of the battle of Salamina,which could happen at the future where p na not p have the same ontological status, then we could not decide between p or not p before the time solves the question.

[3] "(...) und dieses Subjekt ist: Alles, oder ein A, was ebensoviel Alles oder Jedes bedeutet.".

With concepts like positive, negative, negation, movement autonomy (*Selbstbewegung*), overcoming (*Aufhebung*), Hegel tries to structure the minimal table of his logic of processes. It is evident that he escapes, concretely, in his semantics from the principle of explosion, for building his logic this way. He employs the verb "to overcome (*aufheben*)" to mean the overcoming, as a moment in which the contradiction is solved, where the existing elements in a prior stage are combined to solve the contradiction, producing the zero. [280-281]

4 Hegel's Critique of the Absolute Principles in Logic

"The majority of the principles, which are presented as absolute laws of thought are, therefore, after they had been considered nearer, opposite in themselves, they contradict themselves and overcome reciprocally." (*Die mehreren Sätze, die als absolute Denkgesetze aufgestellt werden, sind daher, näher betrachtet, einander entgegensetzt, sie wiedersprechen einander und heben gegenseitig auf.* [259-260])

"If each thing is identical to itself, so each thing would not be different or opposite, [each thing] would have no ground." (*Wenn alles identisch mit sich ist, so ist es nicht verschieden, nicht engegensetzt, hat keinen Grund.*)

In fact, when Hegel works with the contradictions from the objects in themselves, he must develop his critique of the principle of identity. If the contradictions are everywhere, how can we speak about identity? He works on the Aristotelian concepts. Aristotle solved many ontological and logical problems with the invention of substance and essence and the *to ti en einai* (τὸ τί ἦν εἶναι, Metaphysics 1029b 13-14; 1003a 21-22 τὸ ὂν ᾗ ὂν). The substance means simultaneously the change (movement) and the stay. In spite of his genial creation, Aristotle was more interested in the result of change than the change itself. For Hegel, the essential question is how to pass from one moment to another—it is the change.

Aristotle says:

- "Socrates is young"
- "Socrates is old"

Both statements are somehow the same, as they are moments of the same essence. Hegel points out that the step from one to the other is not possible if we consider only the principle of non-contradiction and the absolute expression of the principle of identity. If Socrates were young and not young, he could not be identical to himself. If he (Socrates) were identical to himself, he could not be young and not young. Of course, Hegel is considering a moment when the extension of old (not-young) is very small, as if young and not-young were so near. In this case, not-young would be like "quasi-young."

As a result of this critique, Hegel obtains the principle of contradiction and the principle of identity in the difference, in the opposites. The first formulations overcome one another (*sie wiedersprechen einander und heben gegenseitig auf.* [259-260])

I think that is a very interesting critique, because, with one principle or another, Hegel points out that logical thought itself is, in its foundation, a problematic question. Even more interesting: he indicates that relations between the principles are, somehow, contradictory. It is quite remarkable that Hegel published

his critique of the logical principles in 1813, before the invention of non-Euclidean geometry. We can suppose, at least as a historical hypothesis, considering the similarity (concerning the small number of axioms) between the logical axiomatics and the axiomatics of geometry, that Hegel's reflection about this question could have some influence on the discovery of the non-Euclidean tradition in geometry. Lobatchevsky published his work in Russia in 1829-1830, and in German in 1840. He taught a course on imaginary geometry in 1826 at Kazan University. Gauss, in a letter to Taurinus in 1824, spoke about a non-Euclidean geometry. Works of Janus Bolyai about non-Euclidean geometry were published in 1832-1833, and he introduced this idea in 1823 (*Pavlenko, A.*).

5 The Logical Reasoning and the Contradiction, Vasiliev

What is present in Hegel's logic is an indication for building a logical structure similar to where there is a contradiction in the inner of a predicate and a contradiction between different judgments. The contradiction in the inner of a predicate in one judgment—as in the inner of a subjective grammatical structuring (the modality of possibility in Aristotelian logic)—does not imply the principle of explosion. However, there is an important difference between Hegel and Vasiliev. Hegel thinks of his logic as a logic for our real world, in spite of his idealism, and Vasiliev for the imaginary world, as we know. Hegel works with the foundation of the concepts of his logic, and many of his developments, I think, happen in the space of Aristotle's foundation of logic.

He thinks his logic as a logic of real movement, of reality, despite the fact that reality for him is the representation of the Idea. To this end (to make a logic of real movement), Newton da Costa says in his book *The Foundations of Logic*: "In order to work, for a logic, being coherent is not enough; it must reflect the objective reality."[4]

It is clear that Hegel tried to develop a logic for the movement and the changes, which always happen in our world. Today, it is an established truth that in quantum mechanics the classical logic does not work. The principle of contradiction does not work for quantum mechanics. The photons are waves and particles; the photons are waves and are not waves (as they are particles). People also say that the identity principle has no sense in quantum mechanics, as Schrödinger tells us.[5]

What Hegel tells us is that, for the macro world too, we need a logic of movement. Thought itself is contradictory and could not forget the contradiction. We have the demonstration by absurd; we have the square root of four, which is plus two and not plus two (2; –2). The most remarkable: Hegel was fully aware of this fact.

Another fact, which I would underscore, is the reciprocity between the principle of identity and the principle of non-contradiction. We have the impression here that Hegel anticipates, somehow, the logical questions of quantum mechanics, as he thinks of their reciprocity.

The law of identity is true only in the unity with the difference and, as such, it is produced in each experience. Hegel underlines this fact and insists that A is A is a mere tautology, which gives us nothing:

[4] Da Costa. Os Fundamentos da Lógica, p. 113.
[5] A esse propósito, Da Costa, N. & Krause in Schrödinger Logics.

to say that a plant is a plant is to say nothing. However, for time t_1, which has the contradiction c_1, the reasoning must refer to it as fixed, because we cannot escape from the law of identity in its most identical moment. In general, we must maintain, during one demonstration, the propositions that we admitted once there. The tautology is also important in mathematical equations, as a form to express their truth. We know that we solve any equation when we come to this tautological result.

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